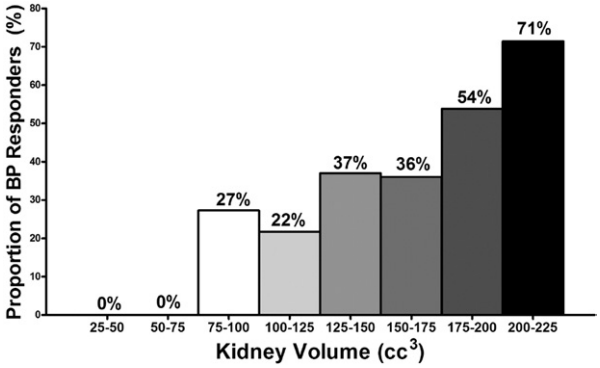
clinical variables that can distinguish these individuals. The purpose of the current study was to identify kidney morphological features that predict a favorable blood pressure (BP) response to RAS.

Methods: The study cohort consisted of 97 patients who underwent RAS over 9 years. Patients were categorized as "responders" based on modified AHA guidelines: Bp < 160/90 mm Hg on fewer anti-hypertensive medications or diastolic Bp < 90 mm Hg on the same medications. Renal volume was estimated as kidney length x width x depth/2 based on preoperative CTA or MRA.

Results: The mean age of the cohort was 68 ± 1 years. A favorable BP response was observed in 33 of 97 patients (34%). Ipsilateral renal volume was significantly greater for responders, compared to nonresponders (152 ± 6 vs 132 ± 4 cm3; p = .0049), whereas kidney length, width, and depth did not discriminate responders from nonresponders. No patient with a renal volume less than 75 cm3 was a BP responder. There was a highly significant association between renal volume and response to RAS (Figure; Chi square for trend; p = .0035).

Conclusions: A larger ipsilateral renal volume portends a greater probability of a favorable BP response to RAS. Conversely, a renal volume less than 75 cm3 defined the threshold below which a kidney is unlikely to benefit from RAS. These data suggest that renal volume should be considered in patient selection for RAS.



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SS21.

The Contemporary Management of Splenic Artery Aneurysms

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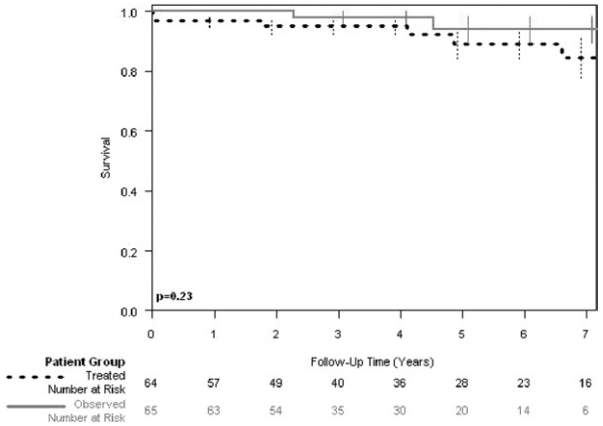
Objectives: The natural history of splenic artery aneurysms (SAA) is poorly delineated. The objective of this study was to review our experience with observation and treatment of SAA.

Methods: Between 1996-2009, 129 patients with SAA were evaluated. 64 patients underwent open surgical repair (n = 13) or endovascular coil/glue ablation (n = 51) while 65 patients underwent serial observation. Statistical analyses and Kaplan-Meier estimates for survival were performed. Mortality was verified via the Social Security database.

Results: Patients (61 ± 11 years, 69% female) were investigated for abdominal symptoms (50%) or had the incidental finding of SAA (mean size 23 ± 14 mm). Seven patients (5.4%) presented with rupture, and were treated emergently with 2 perioperative mortalities (29%). Patients requiring SAA treatment were more likely male (42 vs 20%, p = 0.011), younger (58.5 vs 63.8 years, p = 0.006), and trended towards current smoking (16 vs 5%, p = 0.07). The mean aneurysm size was 3.1 cm for the treated group and 1.5 cm for the observed group (p < 0.001). Endovascular repair was safe and durable with thrombosis or a regression of SAA size on follow-up CT imaging (mean 1.2 years). The mean rate of growth for observed SAA was 0.07mm/year. Ten-year survival was 88.2% (95% CI: 79.8, 97.5) for all patients (observed group 93.4%, treated group 84.4%, p = 0.23). No late aneurysm related mortality was identified.

Conclusions: Ruptured SAA are lethal. Large SAA can undergo endovascular ablation safely with durable SAA regression. Smaller SAA (<2 cm) grow slowly and carry a negligible rupture risk.



Author Disclosures: J. F. Bena: Nothing to disclose; **D. G. Clair**: Nothing to disclose; **V. S. Kashyap**: Nothing to disclose; **L. P. Krajewski**: Nothing to disclose; **R. O. Lakin**: Nothing to disclose; **T. P. Sarac**: Nothing to

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SS22.

Late Outcomes Following Open and Endovascular Repair of Blunt Thoracic Aortic Injury

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Objectives: Previous studies have focused on early outcomes of open (DTAR) and endovascular (TEVAR) repair for blunt aortic injury (BTAI). Late results remain ill-defined and are the focus of this report.

Methods: 108 patients (1992-2009) underwent repair for BTAI. Mean age was 38.7 years (74.1% male). DTAR was performed in 90, with left heart bypass (85) or hypothermic arrest (5). TEVAR was used in 18 of 44 treated since 2002. Since 1997, repair was selectively delayed in 53 of 74 treated in that interval. The primary outcome was vital status (100% followup, mean 100 months).

Results: Mean Injury Severity Score (ISS) was 39.5. 30-day mortality was 5.5% (6). Early morbidity included permanent spinal cord ischemia (2, 1.8%), stroke (3, 2.8%) and need for permanent dialysis (2, 1.8%). Independent predictors of a composite outcome of early mortality and these morbidities included age>60 years ($p = 0.007$) and elevated preoperative creatinine ($p = 0.04$), but not type of repair ($p = 0.39$) nor ISS ($p = 0.37$). 10 yr Kaplan-Meier survival was 85.1%. Independent predictors of late mortality included age>60 years ($p = 0.02$), and the presence of diabetes ($p = 0.04$). In a comparative analysis, the TEVAR group was older (DTAR 36.8 years vs TEVAR 48.2 years, $p = 0.01$), more frequently had coronary artery disease (DTAR 3.3% vs TEVAR 22.2%, $p = 0.01$), and a higher incidence of delayed repair (DTAR 69% vs TEVAR 89%, $p < 0.001$). When stratified by age, there was no survival difference based upon repair type ($p>0.4$). Endograft collapse occurred in 1 necessitating endovascular reintervention. Freedom from aortic reintervention at 4 years was higher after open repair (DTAR 100% vs TEVAR 94%, $p = 0.03$).

Conclusions: Repair for BTAI has excellent early and late results, regardless of therapeutic approach. Although TEVAR has an increased risk for reintervention, factors other than treatment strategy impact late survival. These data support the growing role of an endoluminal approach for BTAI in anatomically appropriate patients.

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VS 4.

Video Presentation

Left Renal Vein Transposition for the Treatment of Nutcracker Syndrome

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Background: Nutcracker syndrome, defined as compression of the left renal vein between the superior mesenteric artery and the aorta leading to flank pain and hematuria, was first described in 1950. Additional symptoms may include a left-sided varicocele, pelvic congestion syndrome, and orthostatic proteinuria. The diagnosis is primarily clinical but relies on information obtained by axial imaging along with duplex and venography. Indications for treatment include significant hematuria, severe flank pain, and renal functional impairment. Treatment options include left renal vein transposition, transluminal angioplasty and stenting, renal autotransplantation, and nephropexy.

Technical Description: We present the case of a 23-year-old male who presented with a 9-month history of left flank pain and hematuria. He underwent an extensive work-up including CT, MR, duplex ultrasound, and venography. Based on these studies and his clinical presentation he was diagnosed with Nutrcracker syndrome. He subsequently underwent open left renal vein transposition. He recovered well and was discharged on postoperative day 5. At one- and three-month follow-up, he had markedly diminished flank pain and no further hematuria. Duplex ultrasound demonstrated a widely patent left renal vein.

Author Disclosures: D. Baril: Nothing to disclose; **R. Chaer**: Nothing to disclose; **M. Makaroun**: Nothing to disclose; **P. Polanco**: Nothing to disclose.

SS23.

Minimal Aortic Injury: Which Patients Can Be Observed?

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Objectives: Increased utilization of CT angiography in the work-up of trauma patients has led to increasing diagnosis of Minimal Aortic Injury (MAI). The aim of this study is to review the outcomes of patients with Blunt Aortic Injury (BAI) that were treated nonoperatively at our institution over the past decade.

Methods: All patients admitted with BAI from Jan 1, 1999 to Dec 31, 2008 were identified from a review of medical records. Patients were then analyzed based on type of aortic injury, method of repair, ISS, morbidity, and mortality. Type of injury was determined by review of imaging and divided into the following categories: MAI - absence of "external aortic contour abnormality" (EACA) with small intimal injury <10mm, Large Intimal Flap (LIF)- absence of EACA with intimal injury >10mm),